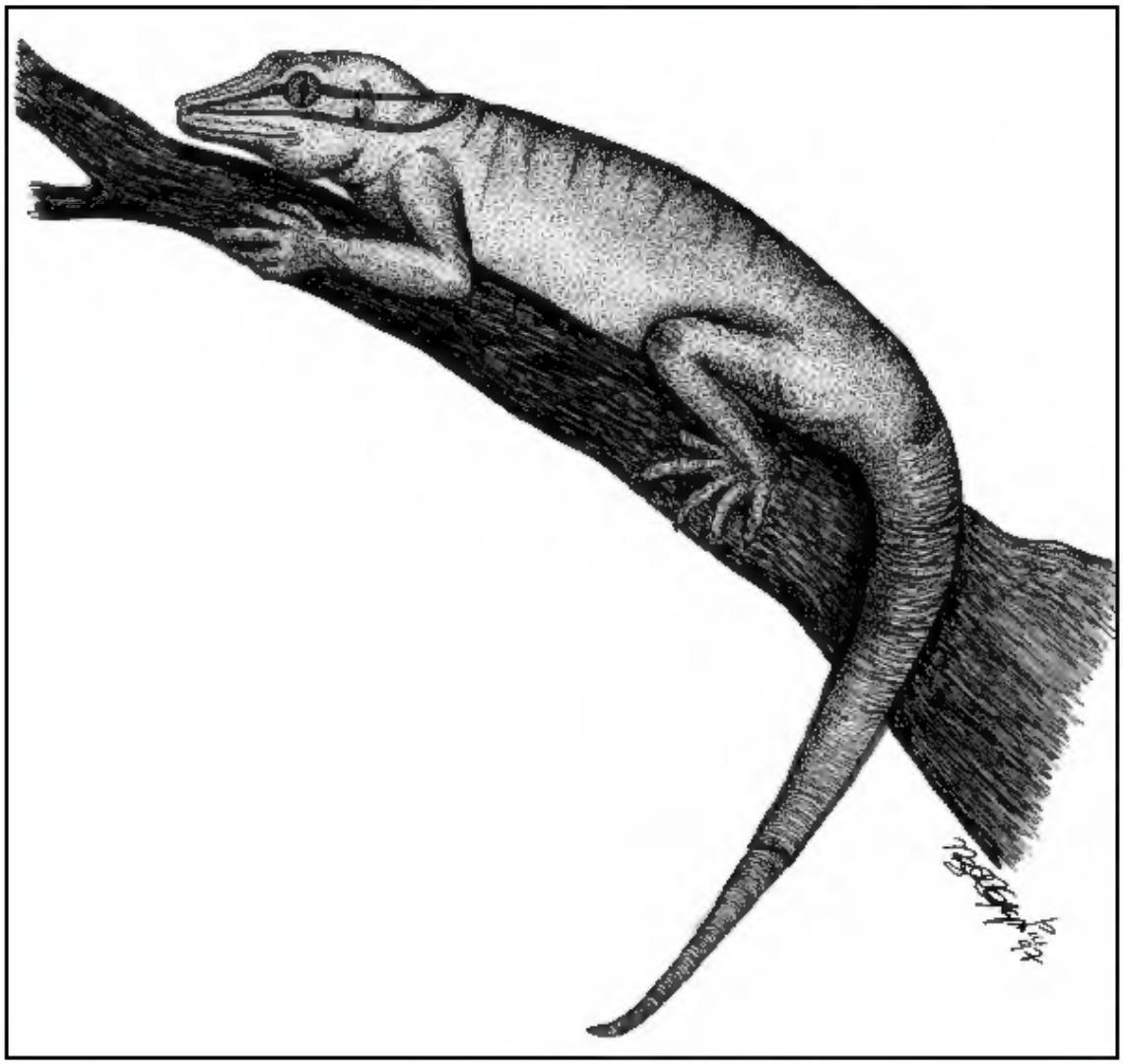
BULLETIN
of the
Chicago Herpetological Society

Volume 32, Number 11
November 1997



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Bull. Chicago Herp. Soc. 32(11):225-226, 1997

A Second Specimen of *Elaphe flavirufa matudai* (Reptilia: Serpentes)

Klaus-Dieter Schulz[1], Hobart M. Smith[2], David L. Auth[3], David Chiszar[2] and Frank van Breukelen[2]

Only one specimen of its subspecies has been known for some 56 years since *Elaphe flavirufa matudai* Smith (1941) was described. The absence of confirmatory examples has led some authors (e.g., Dowling, 1932; Wilson and Hahn, 1973; Wilson and Meyer, 1985) to question the validity of the taxon, although generally it has been tentatively accepted (e.g. Dowling, 1952; Schulz, 1993, 1996). We here report a second specimen that supports the concept of its validity.

The specimen is UCM 45777 (Figure 1), a small adult male, 856 mm TTL, 176 mm TL, from San Jerónimo, 450 m, Volcán Tacaná, Chiapas, taken 22 September 1970 by E. C. Welling. That locality is on Pacific slopes some 60 airline kilometers from the type locality on the slopes of Cerro Obando, Chiapas, and at about the same altitude. Presumably the subspecies occurs on Pacific slopes in adjacent Guatemala, inasmuch as Volcán Tacaná peaks on the border between Chiapas and Guatemala. All other subspecies of *E. flavirufa* are confined to Atlantic slopes; all records for "Tehuantepec" (e.g., Dowling, 1952; Schulz, 1996: 279, map) are here regarded as erroneous in reference to the city, although correct in reference to the Isthmus of Tehuantepec.

One specimen from "Tehuantepec" (UF 105768) was taken in 1963 by P. J. Regal and G. V. Elliot, whose field catalogs for the pertinent part of the trip were lost. Thus several of their purported collection sites are questionable and unverifiable. The original field tag (PJR 870) on UF 105768 is missing, and "Tehuantepec" on the replacement field tag refers merely to the general region of the Isthmus of Tehuantepec, inasmuch as the exact locality was not then known. Original field tags on other specimens, however, that bracket PJR 870, may more reliably indicate the source of UF 105768: PJR 868 is from "Hwy 185, 40 km N jct Hwy 190", and PJR 871 is from "Hwy 185, 56 km N jct Hwy 190." Both localities are on Atlantic slopes over 80 km by road north of the Pacific slope Ciudad Tehuantepec. PJR 870 was quite likely taken between those two localities.

The UIMNH specimen reported by Dowling (1952) from "Tehuantepec" was obtained from Thomas MacDougall, who not only collected many herps with precise, accurate locality data on his many long forays afoot in the hinterlands of Oaxaca, Chiapas and Veracruz, but also bought many specimens from local collectors who obtained them far and wide, but commonly provided no precise locality data. Thus the locality "Tehuantepec" for MacDougall's material cannot be accepted as meaning the city by that name. Accordingly, no incontrovertible evidence exists that *E. f. flavirufa* occurs near Ciudad Tehuantepec or anywhere else on Pacific slopes. It obviously does occur on the Isthmus of Tehuantepec, but only on its Atlantic slopes.

The most distinctive feature of *E. f. matudai* (pronounced in English as though the name were spelled matsudai) is, as recognized by all workers, the extremely broad dorsal blotches, reaching in the present specimen to a mean of the 2.0 dorsal scale row on each side (of the 39 dorsal blotches, 12 reach the 1st scale row, 21 the 2nd, 4 the third, 1 the 4th and 1 the 5th). Concomitantly, the lateral blotches extend dorsad to a mean of the 2.6 dorsal scale row (of the 39 lateral blotches on one side, 7 extend dorsad to only the 1st scale row, 13 to the 2nd, 16 to the 3rd, 1 to the 4th, and 2 to the 6th). Only the three reaching the 5th and 6th rows are closed ventrally. There is no evidence of a third row of spots.

On the contrary, in other subspecies of *E. flavirufa*, few if any dorsal blotches extend laterally to any dorsals below the 5th row, the lateral blotches are mostly closed ventrally, and even a third row of partial blotches is often present. For example, three from Honduras (UF 64784, 86507, 105765) all have relatively narrow dorsal blotches, none extending below the 4th scale row, and few below the 5th; all lateral blotches are closed ventrally, and there is even a third row of incomplete blotches. UF 105768 from "Tehuantepec" is much the same, although none of the dorsal blotches extend below the 5th row, and most end on the 7th and 8th rows. UF 11277, from 14 mi W Acayucán, Veracruz, is badly damaged (DOR), but appears much the same as UF 105768. UF 105767, from 56 mi S Tampico, Tamaulipas, in the state of Veracruz, also has all lateral blotches complete, but the dorsal blotches extend as far laterally as the

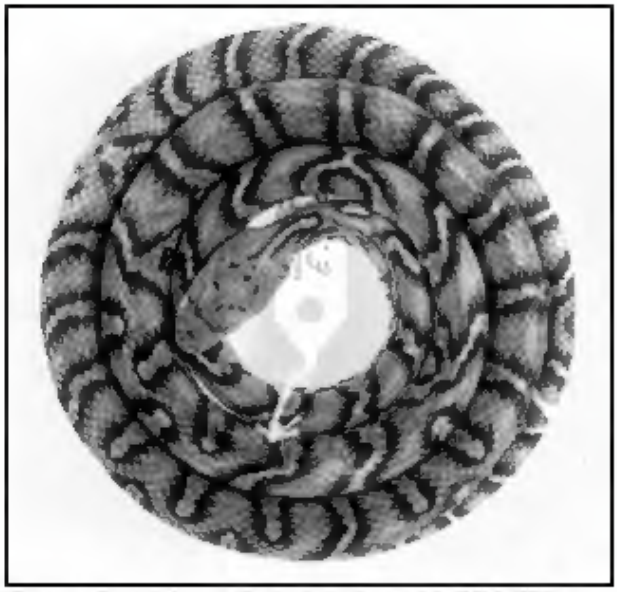

Figure 1. Dorsal view of *Elaphe flavirufa matudai*, UCM 45777, from San Jerónimo, 450 m, Volcán Tacaná, Chiapas, 856 mm TTL.

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3rd dorsal row (although few below the 5th, and some not below the 8th), and there is a third row of incomplete blotches. In two live specimens from Corn Island, Nicaragua, none of the dorsal blotches extend below the 5th scale row, all lateral blotches are closed ventrally, and an incomplete third row of blotches is present.

Other character-states of the second specimen now known of *E. f. matudai* include 256 ventrals, 109 caudals, 25-29-21 scale rows, 1-2 oculars, 10-10 supralabials (5-6-7 entering orbit, 4th wedgelike, not reaching lip), 13-13 infralabials, 10 dorsal tail blotches, no ventral pigmentation medial to lateral keel, and sparse subcaudal pigmentation. Of the several possible differences of this subspecies from the nominotypical taxon, as suggested in the original description and in Dowling (1952), the only ones that now appear likely to be valid, other than the dorsal pattern, are (1) usually 10 supralabials (vs usually 9); (2) usually supralabials 5-6-7 entering orbit (vs usually 4-5-6); and (3) general dorsal ground color relatively dark, as shown in Figure 1 (vs relatively light).

In view of the distinctive characteristics seemingly consistent throughout the apparently completely isolated population of *E. flavirufa* in southeastern, Pacific-slope Chiapas, recognition of the distinctness of its subspecies is fully justified.

Acknowledgments

We are much indebted to Kamuran Tepedelen for the loan of two live *E. f. pardalina* from Corn Island, Nicaragua, for comparison with *E. f. matudai*; to Dr. Steven Sroka for information on UIMNH material; and to Drs. Carl Bock, Michael Breed, Michael Grant and Shi-Kuei Wu for space and facilities for study.

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Bull. Chicago Herp. Soc. 32(11):226-228, 1997

Life History Notes on *Siren intermedia* in Southern Illinois

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Abstract

A weekly sampling strategy at Etherton Pond and Illinois Route 3 roadside ditches in southern Illinois was used to determine the larval hatching period (late March–early April) of *Siren intermedia* (Caudata: Sirenidae). Certain newly hatched larvae (N = 21, mean snout–vent length [SVL] = 12.7 mm) were collected with yolk remnants. Rapid growth of larvae (97% increase in 24 d) occurred under laboratory conditions. Sirens < 91 mm SVL were immature.

Introduction

Two genera of sirenids are found in northeastern Mexico and central and southeastern United States: *Pseudobranchus* and *Siren*. Both are characterized by neoteny or reproduction in a larval state and paedomorphism (having one to three pairs of gill slits, three pairs of external gills and no eyelids). They also have moderately developed forelimbs, reproduce presumably by external fertilization (lacking cloacal glands in males, spermathecae in females and cloacal papillae in both sexes) and are without hindlimbs (Dunn, 1923; Martof, 1973, 1974; Duellman and Trueb, 1986). Some information exists concerning the larval hatching and oviposition period of *S. intermedia*. Noble and Marshall (1932) described laboratory hatchlings (10.5 mm total length [TL]) through 51-day-old larvae (22 mm TL) from eggs collected during April in Arkansas. Bishop (1941, 1943) determined a spring ovipositional

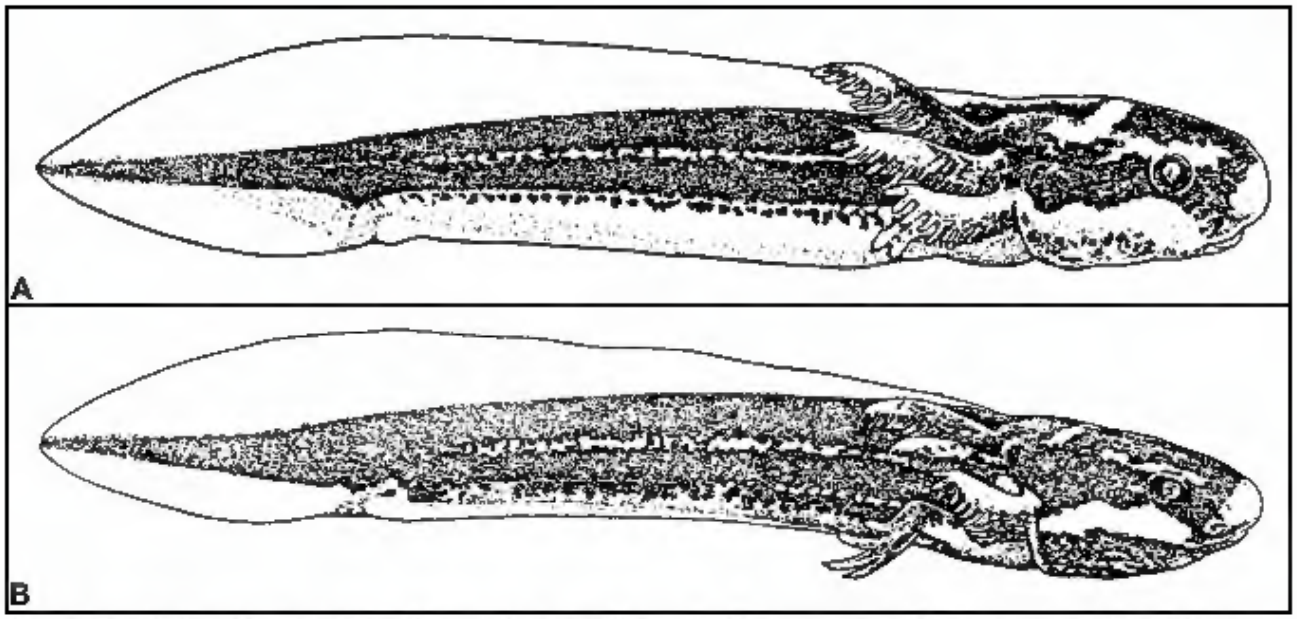

Figure 1. From Noble and Marshall (1932). A.) Twenty-five-day-old *S. intermedia* with a pronounced dorsal fin, undeveloped forelimbs, (without horny tarsal claws), a middorsal yellow stripe from the neck region to the tail, and a large number of yellow melanophores and wide stripes (clear areas) on the lower and dorsal surfaces of the head. B.) Fifty-one-day-old *S. intermedia* with developed forelimbs, horny tarsal claws (on three of the digits) and reduced number of yellow melanophores and narrow stripes (clear areas) on the lower and dorsal surfaces of the head.

period and collected hatchlings 10.5 mm SVL (13 mm TL). Gehlbach and Kennedy (1978) collected females in Texas which later oviposited eggs in late February and early March. In southern Florida Godley (1983) reported laboratory hatched larvae 11.5 mm TL from eggs collected in February. Dundee and Rossman (1989) predicted that the time of hatching in Louisiana is midwinter. Fauth et al. (1990) reported laboratory-hatched larvae, mean TL = 20 mm (range 17–22 mm), from eggs collected during early April in North Carolina.

The lesser siren, *S. intermedia*, is a common inhabitant of a variety of aquatic habitats in southern Illinois but there are only scant references to larvae, with three (19, 30, and 44 mm SVL) collected at LaRue–Pine Hills Ecological Area, Union County, Illinois (Smith, 1961). Since 1989 I have made collections and field observations of sirens in southern Illinois. Life history notes are presented on larvae and juveniles.

Materials and Methods

Results are based on: (1) field observations and collections of larvae in 1991 at Route 3 roadside ditches near Gorham, Jackson County; (2) observations and collections of larvae and juveniles in 1992 at Etherton Pond along Illinois Route 127, 9 km S of Murphysboro, Jackson County; and (3) field observations of larvae at Winters Pond (LaRue–Pine Hills Ecological Area), Union County, in 1989. Both Etherton Pond and Route 3 roadside ditches are subject to extensive drying during summer while Winters Pond is a permanent habitat with water present throughout the year. A total of 15 weekly field trips beginning in February were taken to Route 3 roadside ditches and Etherton Pond to determine hatching period and hatchling SVL.

Most sirens from Route 3 roadside ditches were preserved within 3–4 d while those from Etherton Pond were preserved same day of collection. A small sample of larvae (N = 10) were fed brine shrimp and kept alive under laboratory conditions (Southern Illinois University–Carbondale) to determine larval growth rate. Larvae were staged (Noble and Marshall, 1932) and juveniles dissected to determine if sexually mature. Larvae (N = 76) and juveniles (N = 2) are in my personal collection (WTM). Voucher specimens have been deposited at INHS (Illinois Natural History Survey), Champaign, Illinois.

Results and Discussion

All larvae were found in shallow water (even < 2 mm) and always along the margin and bottom layer of suitable habitat; some were visible on the bottom layer. At Route 3 roadside ditches larvae (N = 18, mean SVL = 16.9 mm, range 13–20 mm, TL range 18–28 mm) were collected on 16 and 18 May. Most had fully developed forelimbs with horny tarsal claws (on three of the digits), reddish gills, and a few yellow chromatophores (present as narrow stripes) on the head. All were widely dispersed in microhabitat. Larvae (N = 58, mean SVL = 13.5 mm, range 11–15 mm, TL range 15–21 mm) collected at Etherton Pond (29 April) had a pronounced dorsal fin, undeveloped forelimbs without horny tarsal claws, reddish gills, a middorsal yellow stripe from the neck region to the tip of the tail and a large number of yellow chromatophores (present as wide stripes) on the head. Some larvae (N = 21, mean SVL = 12.7 mm, range 11–14 mm) had yolk remnants. All were collected along a 1.5 m stretch of shoreline (although extensive collecting attempts were made in many areas of Etherton Pond) and none before 29 April. At Winters Pond (14 May) larvae (N = 30) were collected (and released) in shallow water near the pond margin and were similar in SVL and coloration pattern to collections from Route 3 roadside ditches.

Most larvae from Etherton Pond were staged at 25 days (Figure 1A) while those at Route 3 roadside ditches were staged at 51 days (Figure 1B) or older. However, Godley (1983) found larvae at hatching (11.5 mm TL) to have well-developed dorsal fins and forelimbs and with all four digits distinct ten days after hatching (not 25 days as in this study and in Noble and Marshall [1932]). Larvae with yolk remnants (those from Etherton Pond) clearly indicate recent hatching (early April) while larvae from Route 3 roadside ditches indicate a late March hatching. Hatching period in southern Illinois is similar to that in Arkansas and North Carolina (Noble and Marshall, 1932; Fauth et al., 1990). Differences in spatial location (widely dispersed at Etherton Pond and close proximity at Etherton Pond) could be that larvae were recently hatched and possibly from the same nest site at Etherton Pond (although no attendant females were sighted). Godley (1983) has collected attendant females. Larvae kept under laboratory conditions increased in length by 97% in just 24 d (mean SVL from 16.9 mm to 33.3 mm) a much greater increase than that reported by Noble and Marshall (1932).

I collected two juveniles, 76 and 91 mm SVL, at Etherton Pond in April 1992 by continual dip-netting of the bottom layer of aquatic habitat, the same technique used in collecting adults. The juveniles were approximately 12 months of age based on a late March–early April hatching period; both were sexually immature. Davis and Knapp (1953) found that females < 150 mm SVL and males < 190 mm SVL were immature, with sexual maturity being attained in the second year.

Acknowledgments

I thank the American Museum of Natural History for permission to reproduce the drawings of larval *S. intermedia* and the Illinois Department of Conservation (Department of Natural Resources) for the appropriate required scientific collecting permit.

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Bull. Chicago Herp. Soc. 32(11):228-229, 1997

Notes on the Rhinoceros Viper (*Bitis nasicornis*) in Captivity

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The rhinoceros viper (*Bitis nasicornis*) derives its common and scientific names from the enlarged rostral scales (horns) on the tip of the snout. The genus *Bitis* contains about 11 species, all found in Africa in various habitats. *B. nasicornis* is usually found in rainforests, swamps, rivers, streams and lakeshores, from Kenya, Uganda, Sudan, Angola and Zaire to Guinea on the western coast of Africa. Rhinoceros vipers have robust, wide bodies, which is typical for the larger snakes of the genus. Neonates average 7–8 in; adults are usually 3½–4½ ft. Typically, the rhino viper is brilliantly colored in red, yellow, blue, black and white, with a black arrowhead pattern on the head. This species has heavily keeled scales, with the horns at

the tip of the snout usually yellow in color. Despite their brilliance, the colors are disruptive, allowing these vipers to become virtually invisible in their natural habitat. Eastern populations are usually darker in color than those of western Africa.

In the wild most rhino vipers will be found in or near aquatic environments such as swamps, marshes and streams. These semi-aquatic snakes are also good climbers. They will often bask in shrubs or low trees, waiting for prey to come within striking distance.

Although frogs, toads and fish have been recorded as prey species in the wild, rhinoceros vipers will normally accept prekilled rodents after having been allowed to settle in for a few days. *Bitis* do not generally respond to tease-feeding, in which prey items are touched at different parts of the snake's body. Rhino vipers will usually accept prekilled rodents if they are simply moved to within a few inches of the snake's snout and moved slightly. It is important not to overfeed these animals; they are lethargic by nature and will become fat quickly if overfed. I usually feed neonates a fuzzy every 10–12 days and adults a large rat every 12–14 days.

There is some controversy about desirable temperatures for rhino vipers. In the wild they are found in an aquatic environment or on the shaded forest floor. In captivity I have maintained many rhino vipers in a temperature range of 78–84°F; although parts of their cages may reach 88°F, most tend to stay by choice in the 78–82°F temperature range. High temperatures will often inhibit feeding and cause poor sheds.

Historically, imported rhinoceros vipers have not done well in captivity. They usually come in severely infested by a wide variety of endoparasites; they may be dehydrated or show signs of respiratory distress. Soaking them in water and prompt diagnosis of endoparasites are critical in wild-caught animals. A fecal sample should be furnished to a veterinarian for analysis immediately.

Rhino vipers are lethargic and slow to strike; nevertheless, their venom is highly toxic and an envenomated bite sustained by a human would almost certainly be fatal unless promptly treated. They should be maintained in a securely locked cage at all times.

White printer's paper makes a good substrate. It makes it easy to see a soiled cage and dries out well after daily mistings. Keep in mind these snakes are partially aquatic and do seem to like mistings and soaking in water.

Breeding behavior of *B. nasicornis* can usually be initiated by lengthening the artificial rain cycle and photoperiod. While experiencing a distinctive wet and dry season can be an important breeding trigger for the rhino viper, captive breeding has occurred at various times of the year. Allowing males to combat in the presence of females helps stimulate the breeding response. As with many species, herpetoculturists employ a number of different techniques in breeding the rhino viper. The regime detailed here is just one method which has given the author success.

Start with a colony of healthy adults. In October begin feeding them smaller meals; a month later stop feeding the snakes but be certain the animals are drinking fresh water each week. During the last two weeks of November, start the cool-down period. A temperature of 68–70°F should be reached by early December. At this time, gradually reduce the photoperiod. Leave the animals cooled down for 3–4 weeks, keeping a close eye on them.

Then reverse the process and spend two weeks bringing the temperature back up to 82–84°F, increasing the photoperiod and humidity as you go. After feeding the snakes a small meal, put the breeding group together. A cycle of three days together and two days apart for 4–6 weeks seems to work well. After the female has mated, remove her to a separate cage with a warm basking area with bottom heat and a stress-free environment. Approximately six months later the female will give birth to from 12 to 30 live babies.

The neonates are colored and patterned like the adults and will usually accept pre-weanling mice soon after their first shed. It is important to soak the neonates two times per week for 20–30 minutes in fresh, clean water for the first 2–3 months to encourage drinking and continue to make certain they are finding the water bowl. Some *Bitis* have trouble locating the water and need their heads carefully placed in the water bowl 1–2 times per week. As with any venomous snake, it is in the keeper's best interest to give serious concentration and forethought before working with each snake. Remember, as you approach each cage that each individual animal has a different mood and personality. The bottom line is there is no room for error with rhino vipers. Their docile nature obscures the snakes' potential to move very fast; they can strike at lightning speeds!

The intent of this article is not to suggest that anyone run out and buy a rhino viper, but to share information and husbandry techniques. Keeping any venomous snake is a serious responsibility when it comes to the keeper's behavior and habits. Safety must be a top priority all the time—with no exceptions.

If we hope to share our interest, hopes and dreams with the next generation, we need to support captive breeding programs and conservation of all species of reptiles and amphibians. Will these ancient, peaceable and interesting creatures survive in future generations?

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Book Review: *Amphibians and Reptiles of the Great Lakes Region* by James H. Harding

1997. Ann Arbor: University of Michigan Press, xvi + 378 pp.
Hardcover, $49.50, ISBN 0-472-09628-1. Softcover, $19.95, ISBN 0-472-06628-5.
[Zoo Book Sales has extended its discount to CHS members through the end of 1997. CHS prices are $44.55/$15.96]

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This book is a welcome addition to the regional natural history series published by the University of Michigan press that already includes volumes on the insects and mammals, among others, of the Great Lakes environs. It is more than just a field guide, as it provides much data in a readable format on the Great Lakes' geological and climatical history, and hydrology, as well as a good summary of the natural history of each of the species of amphibians and reptiles found in its watershed.

After a Preface explaining the purpose of the book, an Acknowledgements section, a worthwhile section on How to Use This Book, and a complete Table of Contents, the text follows with a 35 page introductory section that contains an overview of herpetology in which the origins and taxonomy of amphibians and reptiles are discussed (a table is included) and many basic terms explained. A brief but good discussion of the "hybrid problem" within the mole salamanders (*Ambystoma*) of the upper Midwest is also presented. Other introductory material covers the role of amphibians and reptiles in the ecosystem, the various ecosystems found within the region, conservation of reptiles and amphibians, how to observe amphibians and reptiles, and the snakebite problem. All of these topics are written in a style that the nonbiologist can understand, not always the easiest thing to do for a biological writer. The only adverse comment I can make about these introductory pages is that some of the topics seem to be out of order. For instance the discussion of the ecosystems of the Great Lakes Region is presented late in the introduction when it would have been better near the beginning before discussion of the paleontology of the region and the roles of amphibians and reptiles in the environment. This is, however, a minor criticism.

The introductory materials are followed by over 200 pages of species accounts separated into sections by animal group—salamanders, frogs and toads, etc. Each section begins with an overview of the group in which characters are discussed and drawings show the important features. Each family is described and its range within the area covered by the text is outlined. This is followed by individual species accounts that include a good description, material on confusing species, distribution and status, habitat and ecology, reproduction and growth, and conservation. Discussions of these topics are up-to-date and written in an easily read format. I found no errors in these presentations. Each species is illustrated in color (some by several photographs) and a map of its range within the Great Lakes watershed is presented. The maps do not show individual sites, but instead the overall range. In some species accounts, important characters are reinforced with line drawings. The accounts of the species definitely inhabiting the region are followed by a discussion of marginal and questionable species where each is illustrated by a color photograph.

Following the species accounts is a Resources section with an adequate, but somewhat general bibliography (many technical papers were omitted, but these are not essential to publication slanted toward a nonbiological audience). Also included are lists of available recordings of frog and toad vocalizations, addresses of national/international and regional herpetological organizations, and addresses of state and provincial regulatory agencies of the region. A Glossary of pertinent terms is included, and the book ends with an adequate index.

The cover is nicely adorned with colored reproductions of a member of each amphibian and reptile group represented in the area. The 84 color plates are of excellent quality, and the 86 maps and 9 black and white line drawings are good. The book is printed on acid free-paper and the type is easy on the eyes. The binding of my softcover copy seems adequate. I found no typographical errors or errors in grammar. The price of the softcover edition is certainly reasonable.

The book is intended as a source of biological data on the amphibians and reptiles of the Great Lakes Region for the general public. In this Harding has done a wonderful job, but there is also much for the specialist as well. I rank this book among the best of the state or regional herpetologies that have been published in recent years. Everyone interest in the herps of the upper Midwest will want a copy. My congratulations to the author on a job well done.

Currently Happening Stuff

reported by Gary Kostka

HerPETologically Speaking . . .

CHS members and their animals were enthusiastically received by throngs of curious visitors at the 15th annual HerPETological Weekend hosted by the Chicago Academy of Sciences on Saturday and Sunday, September 20–21. The event was held at The Nature Museum, temporary home of the Academy. The facility is located on the third level of the North Pier Mall at 435 East Illinois Street in Chicago. Nearly 2,000 people attended the show, and it was hard to tell who enjoyed it more, the guests or the exhibitors.

Herps on display ran the gamut from diminutive geckos to huge pythons and everything in between. The usual crowd favorites were there, including Bubba, the ever-popular American alligator, exhibited by **Jim Nescl**, and Pythagoras, **Joan Moore's** 16-foot Burmese python.

The turtle pen afforded younger attendees an opportunity for a close encounter of the chelonian kind.

Ron and Dottie Humbert captivated young and old alike with their tree of snakes. Consisting of a mass of writhing corn snakes of different color phases entwined in the branches of a miniature tree, their exhibit always attracts a crowd.

Some of the more exotic species on hand included **Lori King-Nava's** black roughneck monitor and a spectacular mangrove monitor exhibited by **Iggy Ibrig**, and housed in an impressive, naturally decorated enclosure.

Ty Park's multi-unit display contained a variety of lizards considered suitable as pets: a leopard gecko; a bearded dragon and a variety of old world chameleons. Alongside this was a large enclosure containing a very substantial water monitor. Ty emphatically stressed to the curious onlookers that animals such as the water monitor do not make appropriate pets for the average person.

Art Nohlberg's display of hatchling corn snakes was a real crowd pleaser, garnering a great many appreciative "oohs" and "aahs". Even those who might normally care little for serpents were transfixed by the beauty of these tiny living gems.

Cheryl Roge, DVM, was available on Sunday to answer any herp-related medical or husbandry questions. Judging from the number of visitors that stopped by her table, the service she provided was invaluable.

Newly introduced at the show this year were Pet and Learn Sessions. These mini-seminars conducted by CHS members, were geared towards the younger, more novice herp enthusiast. A variety of topics were covered, including: "How to Select a Pet Herp"; "Basic Husbandry Techniques"; and general overviews of various species. These sessions were both fun and informative for the participants, making them an extremely effective educational tool.

I'd like to thank all the CHS members who shared their time, their animals and their expertise, to help make this year's HerPETological Weekend a fantastic success. Special thanks go out to CAS Coordinator **Kara Tourville** and her staff for their tireless efforts, and for making us all feel so welcome.

September 24 General Meeting:

President **Steve Spitzer** opened the September meeting with a few words about the previous weekend's show at the Chicago Academy of Science's Nature Museum. He acknowledged that the show had been a big success for the CAS, and that a great time was had by those CHS members who had taken part. He also mentioned that a teacher at the Lincoln School in Brookfield would like to have a CHS member visit her class sometime this autumn with an animal, and give a presentation. If this sounds like something that you might be interested in, you can contact Steve for all the details.

Next up was **Mike Dloogatch**, a member of this year's Nominating Committee, to talk about the upcoming November elections for the CHS Board. Mike noted that there had been considerable apathy over the past few years concerning members running for office, and that he was hopeful that there might be some nominations from the floor for this year's election. After running through the existing slate of candidates, Mike opened up the proceedings for nominations from the floor. The silence was resounding as he read through the list of offices. In fact, not until he had reached the position of Member-at-large was a nomination finally made. Apathy ruled the day yet again.

It has been my pleasure to serve on the Board for the past two years, and I feel that my involvement has greatly enhanced my appreciation for the CHS. I strongly urge anyone who may be interested in having a say in the future direction of this Society, to consider running for office. Granted, there is a slight commitment of time and effort involved, but I feel the rewards far outweigh the sacrifices. If you're interested in running, ask someone to nominate you. If you know someone who might make a good officer, ask if you might nominate them. Take some time to think about what you've gotten from the CHS, then consider this as one possible means of giving a little something back.

Everything You Ever Wanted to Know about Snakes . . .

Following a short intermission and the drawing for the evening's raffle winners, we were introduced to our guest speaker, **Dr. Harry Greene**. Dr. Greene, a herpetologist and

professor of biology at the University of California, Berkeley, is the author of the recently published book *Snakes: The Evolution of Mystery in Nature*. The book has received rave reviews not only in herpetological publications, but in such mainstream publications as *The New York Times* and *Parade*. Using science and art as mutual pathways to understanding, the book deftly combines the informative, insightful prose of Dr. Greene with the stunning photography of Michael and Patricia Fogden. The end result has been described as one of the finest overviews of snakes written to date, and is visually spectacular as well. The book's popularity is borne out by the fact that the first press run of 10,000 copies has already sold out, an unheard-of accomplishment for a volume of this type.

Dr. Greene opened his presentation with a short overview of the layout of his book. He explained that the overall goal of his slide show was to impress us with what he referred to as "the texture of biodiversity." He accomplished his goal with an assortment of slides, including many beautiful pictures from his book, and from his field studies on blacktail rattlesnakes in southeastern Arizona.

Before the lights went down, Dr. Greene took a few moments to discuss one of the biological topics covered in his book, the method by which snakes are able to swallow such large prey. Snakes, he explained, are unparalleled among terrestrial vertebrates in that they are able to swallow prey weighing up to and even more than one and a half times their own body weight. He compared this to someone of his own size being able to swallow a 220-pound hamburger in 20 minutes without the use of hands or utensils of any kind.

By using his arms in combination with his upper body, Dr. Greene was able to effectively model and demonstrate the physiology and mechanics of a snake's jaw in relation to its skull. Dispelling the notion that snakes are able to disarticulate their jaw, he explained the two key adaptations in a snake's skull which enable it to consume prey of such prodigious proportions. Firstly, snakes are lacking the joint known as the mandibular synthesis which fuses the lower jawbones together at the chin in other terrestrial vertebrates. This allows for lateral separation of the snake's jaw. Secondly, a snake's lower jaw is not attached directly to its skull as in other vertebrates. Instead, it attaches to the quadrate bone, which in most animals is part of the skull, but in snakes is more like a free swinging strut which hangs down from the skull. Lack of the direct attachment, known in other vertebrates as the temporal mandibular joint, allows the snake's lower jawbones to move separately, relative to one another. These skeletal adaptations enable the snake to walk its lower jaw around a large prey item, literally pulling its head over its prey rather than pulling it into its mouth as was once commonly thought.

Having completed our brief lesson in snake physiology, we were then treated to Dr. Greene's stunning collection of slides. The first half of the presentation was made up of pictures taken by Michael and Patricia Fogden, many of which can be seen in Dr. Greene's book. He spoke very highly of the Fogden's photographic skills, describing their pictures as having a magical quality. Although it was necessary that many of the photos be staged, they still maintained a high degree of realism. This was credited to the fact that both of the Fogdens are trained zoologists, and that they make it a point to learn about the natural behaviors of their photographic subjects prior to setting up their shots. Dr. Greene also noted that he considered the Fogdens to be artists as well as scientists. This was evidenced by the sheer beauty portrayed in the slides which we were shown. Whether one cared for snakes or not, the appeal of these images on a purely aesthetic level was undeniable.

Accompanying these slides were Dr. Greene's fascinating descriptions of the evolutionary adaptations in snakes which have enabled them to occupy such a wide variety of ecological niches around the globe. I found his discussion of the topic of convergent evolution to be particularly interesting. This is the occurrence of similar characteristics in separate species (in this case snakes), found in different parts of the world. These similarities in appearance and habits have been brought about by the evolution of these animals within like ecosystems. We saw a classic example of this phenomenon, the green tree python of Australia and New Guinea, and the emerald tree boa of South America. Both are arboreal, tropical rainforest dwellers, and have evolved almost identically as far as physical appearance. Another example cited was the sidewinder of the southwestern U.S., and Peringuey's adder of Namibia. These two desert species have developed common methods of locomotion and hunting.

In the final portion of his presentation, Dr. Greene shifted his focus from the context of snakes as a group, to the daily lives of individual snakes in a particular population of blacktail rattlesnakes in southeastern Arizona. He and colleague David Hardy have conducted radio telemetric studies on individual blacktails since 1988, and have learned a great deal about the habits of this species in the process. Dr. Greene's beautiful slides and informative commentary enabled us to share in the fruits of their labors.

He began by detailing the method in which a radio transmitter is surgically implanted within a subject snake. After capture, the snake is taken back to a field lab where it is confined in a plexiglass tube and anaesthetized. While anaesthetized, the snake's vital statistics and general state of health are documented. A sketch of its head pattern is made for use as a future means of identification. A radio transmitter weighing only fifteen grams, and smaller in size than a lipstick container is then implanted in the peritoneal cavity of the snake. This is done through an incision in the snake's belly, behind the stomach and in front of the reproductive organs. Recovery from this procedure takes five days, whereupon the sutures are removed from the incision. At this time, the snake is taken back to the site of its capture and released.

Dr. Greene noted that because the transmitter is so small, (less than five percent of the animal's body mass) it has no observable effect on the behavior of the snake. He also noted that great care is taken not to traumatize the snake during any aspect of the entire procedure, so that it will remain approachable in the field. The snake can be located by using a

hand-held receiver tuned to the specific frequency of that snake s transmitter Life-span of a transmitter is approximately 22 months, and the signal can be picked up from about a mile away under ideal conditions

We were then treated to a series of dramatic slides taken by Dr Greene in the course of his field studies. exhibiting the behaviors of blacktail rattlesnakes. I got the feeling that he was talking about old friends as he described in intimate detail the activities of the snakes within his study group His reverence for these animals was readily discernable, as he eloquently described the behaviors depicted in each slide

In his thorough coverage of blacktail rattlesnakes. Dr Greene described one type of behavior that I found particularly fascinating. This concerned the protective, maternal behavior exhibited by females after giving birth to their young.

After leaving her den in the spring. the pregnant female blacktail goes through a gestation period lasting from April until late July She does not feed at all during this period In fact she hasn't fed since entering her den during autumn of the previous year After her young are born, you might think her first act would be to crawl off in search of a meal, however, this is not the case The mother stays with her babies until they have gone through their first shed, eight to 10 days after being born. Immediately following their shed. the babies disperse It is only then that the mother will take the opportunity to seek a meal.

Mother and babies can be seen basking together in the morning sun at the entrance to their shelter during the days prior to the babies first shed At the first sign of an intruder the babies crawl back inside the shelter, followed by the mother, who places herself between them and the perceived threat Dr Greene noted that the mother also seems to be more prone to rattling during this period By denying her own need for food. and guarding her progeny during the most vulnerable period of their lives, the mother greatly increases their odds of survival.

One of the things that Dr Greene hopes to study in the future is the lives of the baby blacktails. Next year, he plans to implant tiny transmitters in one baby from each of the four litters which he expects to study He hopes to find answers to questions concerning their survival strategies My hope is that he'll share his findings with us

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Bull. Chicago Herp. Soc 32(11) 233-236, 1997

HerPET-POURRI

by Ellin Beltz

Yosemite

As many of you know, I've been rock-climbing in Yosemite National Park. California, for the past month. Last month s column was written in a haze of "leaving-next-week fever " I hope you enjoyed it. but I have no clue what was in it I and a pair of climbers with dreams of their second ascent of El Capitan left Chicago on a Saturday afternoon. slept at Bonneville Salt Flats, saw Mono Lake at sunset Monday and drove into the park My first view of the 3.000-foot-tall, weathered granite pluton called "El Capitan" was of its dark rock face outlined in thousands of stars. As my eyes adjusted, I began to notice lights on the rock face itself We were seeing other climbers' headlamps—some over 2.000 feet above the valley floor The scale of the rock cliffs just has to be seen to be believed Take my word for this—I grew up in a 17th-floor apartment in Manhattan. The canyons of skyscrapers in New York City are on average half as high as the rock faces in Yosemite valley As in the city, the light. and consequent warmth, is a fleeting thing, uneven heating and cooling does strange things to airflow as well Plants and animals colonize the smallest nooks and crannies of any structure, as we saw firsthand When my family moved to Chicago in 1969, we got an apartment on the 76th floor of the brand-new John Hancock Building Our apartment had the beams from the building s steel skeleton Within a few weeks of moving in. there were lichens on the metal and spiders in the corners of the beams. Spiders are carnivores. of course. so that implies there s smaller stuff for them to eat! City vertical landscapes tend to be a world of "supertramps," plants and animals that maximize their opportunities by taking advantage of changing conditions Yosemite's vertical wilderness is a cross between some apparently hardy and adaptable species, and some things I've seen nowhere else The rocks support a fascinating ecosystem. The plants and animals coexist in associations. but microhabitats can separated by as little as a few feet It would be next to impossible to draw lines around a constantly changing dance between sunlight or shadow, wet or dry, windy or sheltered The different orientations of the thousands of sheared-off rock planes result in adjoining areas having vastly different doses of sun, wind rain. mist. pouring or standing water We saw two major types of rock-face habitat open face and in rock planes or cracks. Open faces usually are covered with lichens, which are slippery and to be avoided. Small cracks support mosses. succulents and tiny grasses (although some may be sedges or rushes if there is enough water)

Some naturalists decry climbing as destructive to the ecosystem. but I disagree One of the first thing any climber learns is "keep your feet off the plants " Trust me. stepping on a slippery little succulent a thousand feet up can ruin your entire day You also want to keep your gear out of the larger cracks and joint planes in the rock, which support all the tiny stuff flowering plants and trees Manzanita and canyon live oak are common trees along the planes. Trees are a really nice thing to have on a climb There's nothing so airy as a belay hanging off a featureless crack with no plants and no trees. Even the ants and silverfish don't hang out on flat featureless rock Belays off trees are somehow much more

cozy. If you sit still enough on belay near a tree, you will see all the animals. Lizards poke their heads out when they think the climbers have left. Spiders spin and odd bee-like creatures investigate every button and thread of your gear. Squirrels chase each other around the rock. Another thing climbers learn early is "don't put your rope down a crack." Dry cracks are full of leaves, dirt and snakes; wet cracks form perched ponds if there is no drain. Perched ponds have frogs. The frogs say "my pond, my pond" and give you little wet looks like "Could you leave now, please?" As a last resort, they hide in the cracks and use the acoustics to say, "MY POND, MY POND" in your ear for the next 20 minutes. Perhaps the coziest places on the rocks walls are shelves and rock terraces. You can see them from the valley floor by the outline of the incense cedars and pines. The one place where climbers do really impact the environment are on ledges and terraces. Both are good sleeping places for people, any habitat value they had before is gone if they're on a climbing route. Decades of climbers have groomed most terraces to just gravel sand with all the new falling rocks being put to the outside. The result is a little, rock-walled structure. The artificial talus slope is marvelous for spiders, a fact which arachnophobic people soon discover. People who don't like snakes would probably not like this in summer when the rattlers are out. Sleeping on a ledge makes you feel like a real primitive, especially when the arrival of the next team climbing the face below wakes you up.

The last and scariest features on big walls hang over your head. Roofs are not cozy especially when you have to climb around or over them. Think CTA elevated platform roofs, or the tunnels in the subway. Roofs can be as small as a garden shed roof—or big enough to cover Union Station. Under these giant hanging slabs of granite, hundreds of feet off the ground, mosses and ferns overgrow old pitons and other gear left in the margin. Smaller than roofs, but more ominous are the dozens of loosely cemented flakes and blocks which are just waiting for sufficient inspiration to join the rest of the talus at the bottom of these huge rocks. One assumes there are animals under roofs and flakes. My guess would be various invertebrates and salamanders, as we have seen them in downward-facing joint planes in the Appalachians. One day, on belay on Royal Arches, I watched three pebbles fall from under a flake: one, two (count to 20), three. A few seconds later, two squirrels came roaring out from under the flake, chased each other around like they were on a downed log in the forest, not 500 feet off the ground, and returned to the shelter of the flake. This all took about a minute and a half; after that there was no sign that there was anything bigger than a lizard anywhere in the area.

My Chicago friends and I climbed the apron at Glacier Point, which is near where the rockslide happened that killed a hiker two years ago. You can always see fresh talus; there are no plants or trees growing on it, yet. This highly publicized talus pile is puny compared to others that we walk up on our way to the rock faces. It apparently fell on the only fen in the valley and wiped out the only known population of a fen plant. The geologist in me wonders if fens and seeps might indicate paths of instability in the rock. Saturated material is incompetent and large blocks of granite saturated in water (or surrounded in ice) can come crashing down at any time. Yosemite rock talus is composed of broken pieces of the granitic rocks granite, granodiorite and diorite. The chunks can range from house-sized boulders down to granite sand. The boulders tend to be buried in the smaller-sized pieces of cobble, gravel and sand, rather than freestanding, with large, room-sized gaps—although a few hillsides have these cave-and-lid boulder cities. Free-standing boulders are good places to learn how to climb the canyon big walls, and people are climbing the popular boulder problems all day and all night. One problem, lighted by the NPS incidentally as it is right next to the "ghetto" comfort facility, is actually called "Midnight Lightening." Whether for the electric charge you get from doing it, or from your need to lose weight before trying its overhanging puzzles, noone knew.

At sunrise and sunset the mammals come out. If you ever go to Yosemite, do not leave any food in your car. Do not leave candy wrappers or empty coolers in your car. The bears have learned what human food looks like and they peel open cars (I am not kidding you) and pop out minivan windows, then crawl into the car and trash it until they find the food. Every morning a truck labeled "Wildlife Damage Control" drives around and counts the cars. One day it was 19 cars. Another day it was only 14, but two were in one of the hotel parking lots, so there was quite an uproar. Many climbers sleep in their cars in the ghetto parking lot, one reported seeing a mom and two babies in and out of an adjoining car. He said that the last baby to exit played with the steering wheel like he was driving until mom called again and the baby hopped out the peeled-open driver's-side door! The squirrels will steal anything you leave out and the raccoons come through camp and village with impunity, standing meerkat-like to beg for food. We tried to feed one a clove of garlic and they never came back again! Keep wildlife wild, after all.

In October, reptiles in the hanging gardens and associated talus slopes, slick rock, and ledges covered in talus include the western fence lizard and the alligator lizard, while amphibians seen were Pacific treefrogs and amphibians heard were either two species of toads or one species of toad making two different noises. There is no way to catch a toad calling from deep within boulder talus. It would seem that there are perched ponds (perhaps in old joint planes) buried deep under the boulder-sized rubble at the base of the slopes. One of the park people said that the toads have a fall activity or false activity phase, but there were no papers or posters in the National Park Service (NPS) visitor center with any information. A day of rain brought out the introduced bullfrogs that live in the permanent pond in front of the prestigious Ahwanee Hotel. I was surprised that the obvious action to assist larger native ranids in the Sierras (that is, remove the bullfrogs) had not been taken, nor were there signs or displays about frogs or frog declines. Signs at Half Dome summit said that you were to stay on the trail to avoid damaging salamander habitat, but no salamanders were actively being sought by your correspondent at the top of a bruising 8 5-mile "hike" from the Nature Center (closed for the season) to the top of Half Dome.

It had snowed the night before and all the passes out of the park were closed because of the unexpectedly early storm. With nowhere to go, and the chains to the top scheduled to be removed for winter two days later, I decided to brave the weather and try for the top of the rock. Part of me wanted to look down to see how I would feel at height in the valley. I didn't realize that from a tourist trail, even from the top, you don't get the "climbing view"—really straight down the rock face. The bottom of the hike is relentlessly vertical, then hits you with a long walk in a meadow, followed by switchbacks in a pine forest. The top is all rock and was pretty miserable, but it gave me an idea of what the books call an "early fall Sierran ice storm." The top of Half Dome was catching weather that other rocks in the valley didn't get that day. It was actually high enough and in the right place for the winds to push wet clouds up against the face. Then when the wet cloud hit the cold rock face, the water condensed out and—if you were high enough—froze instantly. Your nose grows icicles under these conditions. A half an hour of this is enough to make you question the sanity of any winter expedition. The top of the rock, even on the tourist trail, was slippery and cold and if any salamander (endangered or otherwise) had chosen to take a walk that day, it would have iced up solid before it got one step out of its rock crevice. There are no logs or other cover objects because previous tourists took all the downed wood and even chopped down six of the seven trees which used to grow there to build campfires, surrounded (of course) by any loose rocks which may have sheltered burrows or provided habitat.

Out of the zone of ice and snow on the 8.5-mile downhill hike, I really began to notice the plant zones. From bristlecones, through pines and cedars, to manzanita, to more cedars and other pines and finally to the maples, oaks and alders of the valley. I was walking with a lovely couple from south of San Francisco who had taken several wilderness medicine and survival classes. It was fascinating to learn about all the things you can do to hurt yourself while walking down 60-degree terrain composed of CCC-built rock stairs of uneven height, width and weathering. The drop-off into the river was always at least 50 feet, while at the falls it was more like 300 feet. The NPS has a really nice fence at the transition from high pool to waterfall. It would have been more reassuring if all the fence posts had actually been in something, many were floating, broken off from their support hole, and held in place only by the chain-link fencing. Maybe it's flood damage or hyperactive tour groups, but it was scarier than any climbing I did the whole trip. We managed to get down the damp, slippery rock stairs of the upper falls just at sunset and did the relatively easy last couple of miles to the base by headlamp. The valley was dry and people who spent the day on the bottom saw fluffy clouds up by Half Dome but received no rain at all. Every rock face in the valley was lit by the gibbous moon which rose before sunset. The last shuttle bus was pulling off in the distance when we got to the trailhead. Fortunately, the couple had a car parked at Curry Village, only about a half-mile further, and were staying in the climbers ghetto, or there would have been a 4-mile base walk back to the tent.

The next day the weather improved and at night my Chicago friends and I hauled their 56 liters of water and another 125 pounds of food, clothes, sleeping platform and gear from the road, through the woods, and up the talus to the base of El Capitan. The next morning, I drove to the Big Trees Grove at Mariposa to see the sequoias with two students from Eugene, Oregon, who had the adjoining camp at the ghetto. Trees to match the rock faces, apparently. Even a wide-angle lens does you no good with these plants. One has a branch, 100 feet off the ground that is 10 feet in diameter. And that's just one branch. Imagine the trunk. The wildlife here was invisible. I wonder about the survival of the grove with the tourist road cut straight through, but this only continues the tradition. One tree is cut through so that stagecoaches and early cars could drive through the tree! The drainage ways here are lined with horsetails. Usually these are indicators of slumps, or disturbed soils, but as these ditches are being fed by road runoff from above, anything is possible. Later we drove to Glacier Point, which is the top of a pluton at about the same height as Half Dome and the top of El Capitan. Sunset here paints Half Dome yellow and pink, but you can't see El Cap at all; other rocks are in the way. We saw the rings of Saturn and the moons of Jupiter through my telescope at night and watched climbers on Royal Arches, Washington Column and the Lost Arrow Spire. At night, you can really see how many people are on the rock by counting the headlamps. Some were taking advantage of the extra light to climb after sunset. The rocks glow white for several days up to and beyond the full moon, but routes west of the Nose are shadowed from the rising moon for about an hour. Of course, the same features which make shadows in the day have moonshadows at night, so the features on the glowing rock walls keep changing all night.

There are no spectacular sunrises in the valley, the widest part is west to the setting sun, so by the time the light gets to the floor it is a bleached morning light. The rocks are warmer than the valley floor if they receive any sun at all. Thus the lizards stay active in sunset on one face of the rock, while the toads trill from the other by the light of the moon. The first warm day after the snow, I found the alligator lizard. It was a nice-sized animal, about 12 inches including the tail and I picked it up quite easily, then reached for my camera. Big mistake here, folks. Yon wee beastie is called alligator lizard for the length of teeth / strength of jaw ratio, or because of its aggressive disposition, or some combination of these two. It drew blood on six fingers before I decided not to try for the photograph and let it go. I did creep up on the same block for a few days, but never saw the critter again. Stellar's jays tease photographers like Yosemite bears break into cars. (Visualize piranhas in a bowl of goldfish.) The squirrels never hold still either and the deer blend into the background worse than the lizards on the white granite rocks. I'm really glad I don't have to do nature photography there. The light is incredibly difficult to see in and is really hard to photograph well. Everything is either too light or too dark. That's this minute. Wait five minutes. What was too light may still be too light or it may now be too dark. Do too much of this and the wind changes in response to the chang-

ing patches of sun. If you re in shadow, you re cold, if not you need shades and sunscreen. There is a pronounced "night wind," which flows up-valley just before sunset. The different rocks from the smallest boulder to the big guys I've been on (Half Dome, Glacier Point, El Cap, Royal Arches, Washington s Column) have vastly different wind exposures. Some faces are incredibly sheltered, some are extremely exposed. You really learn about sun and wind hanging on belay for hours at a time. Anyone baked on one side and frozen on the other realizes quickly that wind and sun do not occur as linked variables here. Shady places are just as likely to be windy as not. One expects that all these factors change during the year in response to changing sun angles and valley weather. The fence lizards maximize their daily sun bath by always basking so that their whole top surface is in sun. They make little lizard sundials; sight off one of the other rocks in the valley and the lizard—you can tell the time of day. The moon tells you the other half.

While my Chicago friends were up on El Cap for 10 days, I climbed a whole bunch of stuff, visited Hetch Hetchy Dam, and scaled the south face of Washington Column with an out-of-season ski instructor from Tahoe and the two students from Eugene. The route is a perfect beginner's big wall. It has a ledge to sleep on and plenty of interesting rock problems. The top is about 2,000 feet above the valley floor, so the pines in the floodplain get really, really small. Cars, but not their noise, disappear entirely until you can see the headlights. Then they're kind of like fireflies. The sleeping ledge reminded me of our apartment in the Hancock Building. There we were 850 feet above street level, here we were about the same, but with no glass walls. But we did have millions of stars overhead, a marvelous view of Half Dome absolutely not seen on any postcards, and a crescent moon sailing up just after midnight. We actually spent two nights on Dinner Ledge, which was great because I slept through the visit of the ringtails the first night. The second night, the ringtails actually got into one of the haul bags. I woke first and lighted the scene with my headlamp while the ski instructor leapt from his sleeping bag with his headlamp in one hand and a rock in the other. Zip goes the rock; the ringtail takes the hint and leaves. Only then does the guy realize he s standing 900 feet in mid air wearing only his sleeping belt and leash! I was laughing uncontrollably. The whole thing reminded me of a diorama in the natural history museum of one of our ancestors, fire in one hand, rock in the other—facing off some horrid beast in the dark! The next morning, we were wakened by the next party climbing South Face, but instead of racing them up, we rappelled down with the haul bags, our trash and our memories of a fascinating place few are privileged to see.

Then my friends were down from El Cap and it was time to go. Too soon! Goodbye climbers' ghetto; no more chilly mornings in paradise firing up the stove for coffee and washing in cold water (thank you, NPS!) in the camp latrine. No more tent and bearbox. No more 7-mile drive for a shower. Just a quick 2,200 mile, three-day trip (I thought) and back to my workday world, preparing for spring semester—two new classes to teach! So we packed the poor Jeep to the gunwales again, checked the tire pressure and drove out of the park through Tioga Pass. Through Tuolomne Meadows, past Mono Lake, out and down over the Sierras at sunset on Saturday. We drove through Nevada at night, passing the ridges and basins with effortless acceleration. Our first clue of what was to come was when we saw our first overturned semi-trailer just east of Cheyenne, Wyoming. Sunday afternoon. It was a lovely sunset, all pink sky, blue horizon and white snow. Then the darkness brought us to the ice and snow which had blanketed Colorado. We drove into the tail of the blizzard in Nebraska, then were in the heart of the trouble. Interstate 80 was a skating rink. There were three to six inches of black ice on every surface, particularly bridges and overpasses. Every rest stop was packed with trucks, no room to get in. Same at all the truck stops and gas stations. I drove for three hours on this stuff, then pulled off 80 when the radio from Hastings, Nebraska, announced that the state police wanted everybody off the road. We slept in our subzero gear (intended for a high Sierra early season ice storm) in the Jeep on the overpass at York. Too soon the sun came up and we found out 80 was closed due to a pile up of semi trucks just a few miles up the road. So we did the rest of Nebraska on side roads. I drove on up to 12 inches of ice, no snow on top of the hills, and all that snow down in the valleys. Quite fun. I'll take clinging to an exposed belay stand 300 meters up any day, thank you, before playing Dorothy Hamill with a 2,000-pound car for 250 miles. I thought about everyone who said "be careful, rock climbing is dangerous" for most of Nebraska. Iowa was fine, the highway was open, and looking at all the cars and trucks in the ditch was entertaining. The upside-down mobile home was the overall parking winner, second place was awarded to the mating semi trucks, and "Ms. Congeniality" went to the girl in the overturned car who was sitting on her headliner in a blanket, reading a book!

Monday night at suppertime, we rolled into Chicago traffic complete with "news" radio traffic and weather calling for the usual hour-and-five in from the airport. I slept for the next two days. So now I am back home, trying to write a column for CHS at three in the morning and finding that I can't focus on the clippings you ve so kindly sent, but I can type and write what just happened. So, I hope you ll forgive only the second travelogue in 10 years—rather than the usual clipping/news-oriented format. Next month (yes, that's two times I ve promised now) I'll return to the news. Please keep sending stuff to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507 or letters only to my E-mail <ebeltz@ripco com>

Unofficial Minutes of the CHS Board Meeting, October 10, 1997

The meeting was called to order at 7:40 P.M. Board members Greg Brim, Ty Park and Jenny Picciola were absent.

Officers' Reports

The minutes of the September Board of Directors meeting were read, corrected and accepted.

The Treasurer's Report was reviewed and accepted.

Membership secretary John Driscoll reported current membership at 1116. John distributed a list of 100 Chicago-area former members to volunteers on the board. The volunteers will each call about 10 of the lapsed members to informally ask questions as to why they failed to renew. Results will be due at the November board meeting. A brief discussion of survey protocol took place. Also discussed was sending out questionnaires with renewal notices.

President Steve Spitzer read aloud letters of thanks in regard to the HerPETological Weekend. The letters were from Paul Helme, Director of the Chicago Academy of Sciences, and from Kara Tourville, who coordinated the event for the Academy.

Committee Reports

ReptileFest 1998: Lori King-Nava handed out a thorough update. Lori and Gary Fogel reported that they had visited the facility at Northeastern University and found it to be more than suitable to our needs. Ron Humbert will attempt to reserve the room for us for the weekend of May 2–3, 1998.

Nominating Committee: Chairperson Gino Martinez read the final list of nominees for 1998 officers and members-at-large.

Old Business

CHS youth auxiliary: Steve Spitzer mentioned the possibility of coordinating the meetings of such a group along with the Turtle Club at North Park Village. Discussion was deferred because Greg Brim was not present.

New Business

Ron Humbert discussed the upcoming elections and the lack of interest among the general membership in running for office. He brought up the fact that more non-board members used to attend board meetings back when we used to hold those meetings at members' homes and suggested that we consider going back to that practice. The consensus was in favor but no definite action was taken.

Round Table

Lori King-Nava thanked Ron for his efforts on the upcoming ReptileFest.

Mike Dloogatch highly recommends Roger Conant's autobiography, a flyer for which was sent with the September *Bulletin*. Mike also mentioned that the CHS had received notice of a public hearing coming up in Madison, Wisconsin, on October 15. The hearing will be reviewing proposed legislation that would make it illegal in that state to possess more than five reptiles or amphibians of any one species. Letters and comments were being solicited.

The meeting adjourned at 9:45 P.M.

Respectfully submitted by the Recording Secretary
Audrey Vanderlinden

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Herpetology 1997

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SYSTEMATICS OF SHORT-HORNED LIZARDS

K. R. Zamudio et al. [1997, Syst. Biol. 46(2): 284-305] surveyed mitochondrial DNA (mtDNA) sequence variation in short-horned lizards (*Phrynosoma douglasi*) from throughout western North America and used these data to estimate an intraspecific phylogeny and to assess biogeographic scenarios underlying the geographic structure of lineages in this species. They sequenced 783 base pairs from 38 populations of *P. douglasi* and three putative outgroups (*P. ditmarsi*, *P. orbiculare*, *P. platyrhinos*). All of the trees resulting from this analysis placed *P. ditmarsi* within *P. douglasi*, contradicting their current taxonomy. The trees also indicate that populations of *P. douglasi* from the Pacific Northwest (ID, CA, OR, WA) form a monophyletic group that is sister to the subsequent radiation of *P. ditmarsi* and other *P. douglasi* clades. These results suggest that divergences within this widespread species are fairly old. The authors focused on the genetic structure of populations of *P. douglasi* from a geographic perspective and interpreted the intraspecific phylogeny in light of geologic and climatic changes in western North America during the last 20 million years. The generally high levels of genetic variation found in these population comparisons are in accord with high levels of morphological variation in this species group. However, only in the Pacific Northwest region is there spatial congruence between these phylogenetic results and subspecific ranges based on previous morphological studies. Based on their analysis, the authors propose that three species be recognized for this group: *Phrynosoma douglasi* (for the Pacific Northwest clade that corresponds closely to the previously named subspecies *P. d. douglasi*), *P. hernandezi* (for a clade containing all other populations previously assigned to *P. douglasi*), and *P. ditmarsi*.

CRYPTIC SPOTTED FROG SPECIES

D. M. Green et al. [1997. Copeia (1): 1-8] report that two species of spotted frogs (*Rana pretiosa* complex) are discernible on the basis of significant allozyme differences. Frogs from the vicinity of the type locality of *R. pretiosa* were found to be conspecific with the species residing in south-central Washington State and the Cascade Mountains of Oregon. Morphometric study of 20 characters using multiple discriminant function analysis (MDA) showed that frogs from extreme southwestern British Columbia are also of this species. These populations comprise *R. pretiosa* Baird and Girard, 1853 *sensu stricto* ("Oregon spotted frog"). Spotted frog populations in the rest of British Columbia, Washington, and Oregon, as well as the Yukon, Idaho, Montana, Wyoming, Nevada, and Utah comprise *R. luteiventris* Thompson, 1913 n. comb. ("Columbia spotted frog"). Four measurements of the head contribute the greatest weight to distinguishing the species by MDA, but qualitative morphological distinctions usable as field characters have not been identified.

ECOLOGY OF A MUD PADDY SNAKE

H. K. Voris and D. R. Karns [1996, Herpetol. Nat. Hist. 4(2): 111-126] report on field studies on *Enhydris plumbea*, a semiaquatic mud snake that belongs to the Homalopsinae, a subfamily of Old World freshwater and marine snakes that reach their greatest abundance and diversity in Southeast Asia. At Kayumadang in Sabah, Malaysia, *E. plumbea* is most abundant in the mud-root-tangle associated with water buffalo wallows in pastures and rice paddies. Larger adults were captured in the stream and pond adjacent to the paddy area. Trapping and radiotelemetry indicate that snakes were largely sedentary but occasionally moved up to 80 m. The diet of *E. plumbea* includes fish and larval amphibians but adult and subadult frogs were the most common stomach contents. Snakes actively forage at night at the surface and move greater distances at night than during the day. However during the day, within the mud-root-tangle, they also feed and exhibit a restricted level of movement.

DEVELOPMENTALLY PLASTIC EGG SIZE

R. H. Kaplan and E. G. King [1997, Herpetologica 53(2): 149-165] document and compare patterns of temporal variation in egg size in three populations of the fire-bellied toad (*Bombina orientalis*) from the Republic of Korea. Data were taken from an 8-year field study and a concomitant 4-year laboratory study of repeated breedings of wild caught females. The authors provide evidence that egg size is a plastic trait in this species by describing the extent and changes of variation in two traits, mean egg size per clutch and intraclutch egg size variation. In the field there was substantial variation among populations, among individuals within populations, and among eggs within the clutches of single individuals. In addition, there were significant differences among years as well as significant population by year interactions. Yearly shifts in egg size were positively associated with environmentally induced shifts in body mass. Similarly, the amount of variation in egg size within a clutch shifted among years. These results imply that substantial amounts of variation in egg size among individuals may not be directly genetic. The laboratory studies further support this view. There were significant differences in the degree of plasticity exhibited by individual females in each of the three populations as measured by the coefficients of variation of mean egg size and intraclutch egg size variation among females based on repeated breedings of individuals. In addition, repeatability values for individual populations ranged from 0.14 to 0.27 for mean egg size but were not significantly different from zero for the variation in intraclutch egg size. The field and laboratory results demonstrate that egg size variation is highly subject to nongenetic sources of variation. The authors discuss the implications of these observations for an understanding of the importance of plasticity and maternal effects on the evolution of reproductive traits in amphibians.

POLLINATION BY A LIZARD

V Pérez-Mellado and J L Casas [1997, Copeia (3) 593-595] have found that the Balearic lizard, *Podarcis lilfordi* pollinates and drinks the nectar of the sea fern, *Crithmum maritimum*, a Mediterranean relative of the familiar roadside plant, Queen Anne s lace The study took place on Nitge Island, a 10 6 hectare islet close to Menorca Island, part of Spain s Balearic Archipelago Lizards from Nitge are *Podarcis lilfordi fenu*, isolated on this islet at least 9000 years ago The density of lizards is very high and food is limited During midsummer lizards from Nitge climb over the surface of the inflorescences of *C maritimum* just after sunrise, licking nectar and pollen of flowers until sunset At midday, during the peak of this activ ity, almost every active lizard was engaged in nectaring. During foraging, lizards did not destroy flowers or parts of them. Thus, only anthers and pollen grains were present in stomach contents and in a large sample of analyzed scats of the Nitge lizards. Feeding on nectar is an element of a variable set of feeding strategies found in *P lilfordi* that includes consumption of seeds, fruits, and other parts of several plant species, as well as small crustaceans, or even scats from lizards or birds, as a complement to an insectivorous diet But on Nitge Island during midsummer, the diet of *P lilfordi* is chiefly nectar of the sea fern and a few ants The authors tested the lizard s role in pollination with an exclusion experiment on Nitge Island in summer 1993 They found a significantly higher proportion of nonviable seeds in experimental plants from which lizards were excluded The percentage of nonviable embryos varied between 5 08% and 9 82% in control inflorescences from Nitge, and between 14 14% and 75% in experimental flowers (those from which lizards were excluded) Hence, the authors conclude that *P lilfordi* can be considered an important pollinator (but not the sole pollinator) of *C maritimum* on Nitge Island This is the first record of a squamate playing a significant role in pollination; it is also the first time that a vertebrate species has been recognized as a pollinator in the Palearctic region.

A NEW UNISEXUAL SPECIES OF BRAZILIAN WHIPTAIL

C F D Rocha et al. [1997, Herpetologica 53(3) 374-382] provide the first report of a unisexual population of the lizard genus *Cnemidophorus* south of the Amazon forest and the first in South America not belonging to the *C lemniscatus* complex The population was found in a relatively small open sandy area (approximately 1 8 km in diameter) covered with herbaceous vegetation inside the Atlantic forest in southeastern Brazil Collections made in four different years (1991, 1993, 1994 and 1995) contained only females ($n = 42$). Cytogenetic analysis showed a karyotype of $2N = 48$ (five submetacentric, 19 telocentric and subtelocentric macrochromosomes; 24 microchromosomes) There are structural heterozygotes in the second, seventh, and thirteenth pairs of chromosomes The absence of males in the samples and the karyotype pattern indicate that this population is another unisexual species of *Cnemidophorus* and the first case in South America belonging to the *Cnemidophorus ocellifer* complex The new entity is described as a new species, *Cnemidophorus nativo*

ALTERNATING USE OF HEMIPENES

R G Zweifel [1997, J Herpetology 31(3) 459-461] presents records of dates on which 22 captive *Lampropeltis getula* mated and which hemipenis was used Pooling this data with data from an earlier report by Zweifel gives 50 instances of contralateral use and only two of the same organ after up to three days between matings. For longer periods of abstinence (6–28 d) the pooled data for 21 matings are as near equal as possible 11 same side and 10 opposite The significance of alternation of hemipenis use may relate to the quality and quantity of semen in a given mating and to the rapidity with which amale can effect successive matings. Because male squamate reptiles have two morphologically independent reproductive systems, alternation should make possible two equally effective matings within a short time, one system resting or recuperating while the other functions

NEW RAINFROG FROM COSTA RICA

J M Savage [1997, Amphibia-Reptilia 18(3) 241-247] describes *Eleutherodactylus tigrillo*, a new species from southeastern Costa Rica It is a member of the *E diastema* group characterized by a vivid pattern of dark spots on a yellow-orange ground color and features of digital disk morphology The specific name is based on the fact that the color pattern of the new frog is reminiscent of the spotted pattern of the jaguar or *tigre* (*Panthera onca*), the largest American cat and its much smaller relative, the *tigrillo* (*Felis tigrinus*)

ANURAN MARKING AND TRAPPING

L J Brown [1997, J Herpetology 31(3) 410-419] notes that many techniques are used in the study of amphibian breeding populations despite lack of knowledge of their inherent biases. She examined trapping and marking techniques for *Rana temporaria* and *Bufo bufo* Panjet dye marking and PIT (passive integrated transponder) tags had negligible effects on survival and body condition, while persisting up to two years. Pitfall trapping was a reliable technique with $< 1\%$ of individuals escaping from experimental traps; however inaccuracies were found when pitfall traps were used in association with partial barriers. The proportions of species and sexes trapped varied between partial barriers within a site

A NEW SPECIES OF *TARENTOLA*

S M Baha el Din [1997, Afr J Herpetol. 46(1) 30-35] describes *Tarentola mindiae*, a new species from the Western Desert of Egypt The species belongs to the subgenus *Tarentola* Morphologically, it differs from other members of the subgenus chiefly in having large and homogenous temporal scales, enlarged postmentals, low number of subdigital lamellae, reduced dilation of digits and dark color It also differs ecologically in being primarily arboreal and ground-dwelling the other members of the subgenus being largely rock-inhabiting. The species is known to occur sympatrically with at least one other member of the *Tarentola* subgenus. As of now, the species is only known from the periphery of the Qattara Depression, but its range is probably larger The new species is named for the author s wife, Mindy

THE LARYNX OF *UROPLATUS FIMBRIATUS*

D R Rittenhouse et al [Afr J Herpetol 46(1) 36-48] note that the genus *Uroplatus* has been regarded as being unusual or aberrant among geckos since its discovery over 200 years ago Its characteristics have been the focus of much taxonomic and systematic debate and only relatively recently has its place within the Gekkonidae been universally accepted The discovery of new species and the publication of an extensive review of this genus in the last decade have renewed interest in its characters, and a greater understanding of the basic biology of this taxon is now emerging. As part of a survey of the structure of the vocal apparatus of the Afro-Madagascan geckos, the larynx and associated structures of *Uroplatus fimbriatus* and *U. sikorae* were examined in detail and are reported on in this paper When compared to other geckos, the larynx and trachea of the *Uroplatus fimbriatus* complex are highly unusual on a number of counts, in keeping with the large number of autapomorphies displayed by this assemblage A combination of dissection and gross morphological observations, histological investigations, computer-assisted three-dimensional reconstructions, and scanning electron microscopy revealed that the cricoid cartilages are unusually robust and that large blood sinuses lie adjacent to them (in *U fimbriatus*) and may play a role in adjusting the position of the vocal cords; a unique cartilage lies dorsal to the cricoid and may be associated with a change in the insertion pattern of the laryngeal constrictor muscle the anterior end of the trachea is unusually widely expanded and uniquely built Such findings should prompt a more extensive functional morphological investigation of vocalization in *Uroplatus*

DEVELOPMENT IN THE GREAT BASIN SPADEFOOT

J A Hall et al. [1997, Herpetological Monographs 11 124-178] provide a detailed description of and a staging table that portrays the ontogeny of the Great Basin spadefoot (*Scaphiopus intermontanus* Cope) from the just-hatched larva through the adult They concentrate on the development of external morphological characters as observed in individuals raised under controlled laboratory conditions The authors suggest that their staging table, besides providing greater detail, is more appropriate than a generalized staging table for describing the ontogeny of species within *Scaphiopus* Also, they delineate stage boundaries, which has not been done in other staging tables The authors recommend the use of stage boundary criteria for the construction of all future staging tables. The findings of this study indicate that some aspects of *Scaphiopus* ontogeny may be unique Unlike other anuran larvae with sinistral spiracles, the operculum in *S intermontanus* does not pass through a stage in which there are two separate openings. Other features, such as mouthpart characteristics, may be useful for intrageneric larval identification, however, this study shows that at least the labial tooth-row formula variation is affected by both rearing temperature and geographic origin of the specimen sample Finally, rearing conditions possibly affect the timing of certain developmental events in *S. intermontanus* Specifically the timing of hindlimb differentiation seems to be labile relative to when differentiation occurs in other morphological features.

ROUGH GREEN SNAKE ECOLOGY

M V Plummer [1997, Herpetological Monographs 11 102-123] studied a population of rough green snakes (*Opheodrys aestivus*) by mark-recapture at Ransom Lake (RL) in north-central Arkansas over 7 yr (1986-1992). Results are compared to those obtained previously from a population in similar habitat located 12 km distant (Bald Knob Lake, BKL). Over 2700 captures made along the RL shoreline were nonrandomly distributed within areas of dense vegetation Green snakes lived within home ranges averaging 67 m in shoreline length and differing in location between years by about 50 m. Individuals were recaptured on average every 19 days, in which time they had moved linearly along the shoreline about 28 m About 3% of all movements were over water Each of these spatial parameters at RL was very similar to those obtained at BKL. Growth rates of individual snakes decreased linearly with snout-vent length and were similar to those characterizing snakes at BKL. However, greater variance in growth rates at RL resulted in a weaker relationship between body size and age Females grew to be larger than males. Body size of females was slightly larger at RL than at BKL. Younger age groups were proportionally larger at RL than at BKL. Sex ratio was 1 1 both in adults and in all snakes combined In 1987 and 1988 when about 60% of the population consisted of adult snakes, sex and age structure of the population were similar between years. Maximum population density was about 800 snakes/ha Catchability of individual snakes in monthly samples was equal in 1987 but equivocal in 1988 Survivorship was measured directly by age-specific recapture proportions. Adult survivorship (males 28% females 41%) was less at RL than at BKL. Calculated overall first-year survivorship (21.5%) was similar to that at BKL and was slightly greater than hatchling survivorship measured directly by recapture (15-19%) Survivorship for ages ≥0 in both sexes showed a linear logarithmic decline with age (type II survivorship curve) As at BKL, overall clutch size at RL averaged 6 eggs. Unlike at BKL, clutch size at RL differed among years concordant with body condition (weight-length ratio) of snakes. As at BKL, the net reproductive rate at RL ($R_0 = 0.60$) was insufficient for sustaining the population over the long term. Estimated population size varied fivefold over 7 yr and decreased from approximately 350–500 snakes in the first 3 yr (1986-1988) to 100-200 in the last 4 yr (1989-1992) The rapid population decline apparently was due to unusually high mortality among adults, and the increased mortality, in turn, was correlated with unusually hot and dry weather leading to a decrease in the body condition of snakes. Predation by snakes and birds may have contributed to the decline Although snake populations are often regarded as being relatively stable, this study demonstrates that populations of a small insectivorous species are not immune to environmental vagaries and may respond by decreasing density as do other vertebrates. In his acknowledgments the author dedicates this study "to the memory of the green snakes of Ransom Lake who witnessed their habitat bulldozed and converted into a playground for *Homo sapiens*."

YOUNG DESERT TORTOISE SURVIVAL

K. A. Nagy et al. [1997, Chel. Conserv. Biol. 2(3):396-404] studied young desert tortoises (*Gopherus agassizii*), hatched in large fenced enclosures in their natural habitat, during the first two years of their life. They measured rates of growth (body mass changes) and rates of energy metabolism (CO_2 production) and water flux (both by using doubly labeled water) from spring 1992 to spring 1994. They calculated rates of food consumption from energy budgets, and estimated water intake from the diet and from drinking rain water. When active, young tortoises used energy and water at rates similar to those expected for desert reptiles of their size, but they can conserve water and energy very effectively during dry seasons. They grew during the two-year study, having a 30% increase in body mass each year. Neonates and 1-year-olds showed substantial variation in rates of physiological processes between months within seasons, between seasons within years, and between years as well. The primary environmental factors cueing this variation apparently were temperature, rainfall, and the presence of green, succulent plant food. Metabolic rates peaked in late spring, and rates of water intake were highest either when green annual plants were available in spring or when rain fell in summer. During winter hibernation deep in burrows, tortoises were relatively inert, having very low rates of energy metabolism and water loss, and they lost little body mass. Rainless periods in summer appeared to be the most stressful times, as youngsters lost mass rapidly and their Water Economy Index values indicated a water deficit, even though they reduced their energy and water requirements by retreating into their burrows. During its first two years of life, a typical young tortoise used a total of about 175 g (dry matter) of food, equivalent to about 350 g fresh vegetation (3/4 of a pound) while growing from 34 to 55 g body mass. Neonate and 1-year-old survival may be threatened in dry years, when few annual plants germinate and summer rains are unavailable. Conservation efforts that improve availability and abundance of annual plants can benefit young tortoises.

FLORIDA SOFTSHELL REPRODUCTIVE CYCLE

J. B. Iverson and P. E. Moler [1997, J. Herpetology 31(3):399-409] based a study of the female reproductive cycle of *Apalone ferox* in south Florida on 220 reproductive tracts salvaged from females butchered for meat. Some females mature at sizes as small as 24 cm plastron length (PL; ca. 31 cm carapace length), but some may not mature until 30 cm PL. When compared to data from other parts of the species range, body size and size at maturity show no evidence of geographic variation. Follicles first reach ovulatory size in late February, and females first bear oviducal eggs in early March. Nesting season apparently lasts from late March to early August, during which each female may produce as many as five or six clutches of 9–38 eggs (mean = 20.6). This annual fecundity is higher than any other North American freshwater turtle species. However, 9% of mature females (i.e., > 30 cm PL) had inactive ovaries (i.e., maximum follicle diameters < 6 mm and no corpora lutea) during the reproductive season, suggesting that some females may not reproduce every year. Clutch size increases with female body size, but egg size does not (mean, 28.2 mm × 27.5 mm, 12.3 g). The lack of egg size variability across body size, clutch size, season, and geography suggests selection for optimal egg size. Clutch mass averages 4.1% (3.0–5.2%) of spent body mass and does not vary seasonally. *Apalone ferox* reaches a larger size, has larger eggs, and produces as many as twice the number of clutches per year as its North American congeners, however, it is quite similar reproductively to several Old World trionychid species, including its closest outgroups.

HERPETOLOGICAL ASSOCIATION OF AFRICA

The **Herpetological Association of Africa** is dedicated to the study and conservation of African reptiles and amphibians. Members receive two issues of the journal *African Journal of Herpetology* (ISSN 0441-6651) (review papers, research articles, short communications, book reviews) and two issues of the newsletter *African Herp News* (ISSN 1017-6187) (short articles, life history, distribution and snakebite notes, bibliographies, husbandry hints, announcements etc.) per year. Both English and French language contributions, especially those dealing with African reptiles and amphibians, will be considered for publication in the journal.

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Special Offer

Proceedings of the FitzSimons Commemorative Symposium
South African Lizards: 50 Years of Progress
and
Third H.A.A. Symposium on African Herpetology

The **Third H.A.A. Symposium on African Herpetology** was held at the Transvaal Museum in Pretoria from 11 to 15 October 1993. The proceedings are now available in book form: ISBN 0-620-21569-0. 228 pages. A5 size, firm cover, glue & stitch bound. The first part of the book is dedicated to papers presented at the **FitzSimons Commemorative Symposium** held on the first day, celebrating 50 years since the publication of V. F. M. FitzSimons' 1943 monograph *The Lizards of South Africa*. In this section taxonomic changes that have occurred since 1943 in all southern African lizard families, as well as amphisbaenians, are reviewed by experts on the various taxa. Tables listing the taxa recognized by FitzSimons, together with currently recognized taxa, are presented for most families. Some accounts include summaries of all known life history and ecological data. A comprehensive listing of all papers published by FitzSimons is also included. The rest of the book comprises mainly extended abstracts of papers and posters presented during the remaining days of the symposium.

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Advertisements

American Federation of Herpetoculturists A nonprofit national membership organization of herpetoculturists, veterinarians, academicians and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes highly acclaimed magazine *The Vivarium* dedicated to dissemination of information on herpetocultural accomplishments, herp medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. AFH membership is $26. Send information requests to: AFH-News, P.O. Box 300067, Escondido CA 92030-0067.

For sale: rats and mice, pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call. Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618. (352) 495-9024. E-mail: <GrntRodent@aol.com>.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen, pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available: full grown hairless mice. FOB shipping point. MasterCard accepted. Call (518) 537-2000 between 8:30 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, $25.00; fuzzies, $30.00; weanlings, $35.00. Also available are 4 oz. + rats, $130.00. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20.00. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available, small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605. (913) 234-3358 evenings and weekends.

For sale: In stock: Flex-watt and Ultra-therm heating products. **Frozen rodents** always available. Mice: pinks–crawlers, 3/$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢; $1; medium, $1.75-2.00; large, $2.25-2.75; jumbo, 3/$10. Call on quantity discounts; note discount on orders picked up at CHS meetings]. Live rodents available at higher prices. **Available now**: newsletter/catalog; many unique/hard-to-find herp husbandry items. Send business-size SASE for catalog, or call: Scott J. Michaels, D.V.M., Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: Herp bags; colors vary; translucent ripcord nylon, super lightweight, extremely durable construction with hot corners sewn in, double seamed. Custom sizes made upon request. Sizes: 46" × 14", $7 each; 24" × 12", $6 each; 24" × 6", $5 each. Shipping fees, $1 for first bag, $.30 each additional bag. Nicole Lechowicz, 290 Warren Road, #69, Carbondale IL 62901, (618) 457-2783.

For sale: Aldabra tortoises, captive hatched yearlings, approx. 4" gems, inquire; pancake tortoises, inquire; young female Hermann's, $150 each. 3" female redfoots, $125 each; one male and one female 7' leopards, $150 each; one male and two female leopards, male 7', females 11' breeders, $190–250 each; one male and one female black-headed pythons (.95 male, .97 female), beauties, bright yellow with distinct banding, excellent feeders; inquire; ringed pythons from unrelated clutches, *discount* prices (price depends on number ordered), inquire; young Kenyan sand boas, nice orange/yellow with black, $35–45 each. Also: one male and one female Bolivian redtail boas (*amarali*), 6½', heavy-bodied, proven breeders, $2000/pair. Dick Goergen, P.O. Box 225, Alden NY 14004, (716) 681-4518 phone, or (716) 681-3544 fax.

For sale: 3-year-old savannah monitor with large custom enclosure, $400. Iggy, (773) 736-4345.

For sale: c.b. *Uromastyx ornatus*. Healthy, beautiful babies born 8/15/97. Parents are long-term captives raised from juveniles. First generation from females. These lizards are rarely captive bred. $400 each. Serious inquiries only. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477, Pager (773) 323-3462.

For sale: c.b. **"vittikins" bearded dragons and leopard geckos**. $30 and $25. Healthy, well started juveniles and subadults. See Audrey Vanderlinden at CHS meetings or call (773) 836-2477, Pager (773) 323-3462.

For sale: jungle carpet pythons, c.b. '97, $175 each; diamond carpet pythons, c.b. '97, $190 each. Queensland carpet pythons, c.b. '97, $125 each; *Rhacodactylus auriculatus*, c.b. '97, $225 each; one male Children's python, c.b. '96, $150; Macklot's pythons, c.b. '97, $85 each; fat-tail geckos, c.b. '97 (white zones and heteros), $35–40 each. Amazon tree boas, c.b. '96, gray phase, $150/pair. Amazon tree boas, c.b. '97, all colors, $75–300 each. Steven Bostwick, 3824 Lincoln Pl. Drive, Des Moines IA 50312, (515) 274-4580.

For sale: captive-bred snakes and lizards. Species include: leopard geckos, rat snakes, king snakes, milksnakes, pine snakes, African house snakes, spotted pythons, Macklot's Pythons, Colombian boas, Brazilian rainbow boas, and surplus adults as research projects are completed. Feeder mice and rats also available. Call or fax (903) 693-3379 or E-mail <bobball.panola.cc.tx.us> for current prices. R.L. Ball, 226 N. St. Mary Street, Carthage TX 75633.

For sale: one male hetero-for-albino Kenyan sand boa, c.b. 11/95, 25", bright orange, ready to breed, $300; one male and one female Cal. kings, female banded and male aberrant-patterned, 4½', proven breeders, $170/pair. Guatemalan milksnakes *Lampropeltis triangulum abnorma*, two clutches c.b. 9/97, hatchlings and adults, red body rings number 27 to 31 complete rings, and white body rings are 2½ scales long. The red body rings are crimson red with little to no black flecking and the white rings are very clean. This is a unique and rarely seen species of milksnake, a limited number of unrelated pairs are available at $100 each. Tony Tallman, (319) 647-2267, evenings and weekends, [IA].

For sale: 6' female boa constrictor, proven breeder, $400. Jack Phillips, (847) 724-4552.

For sale: Brazilian rainbow boas, 1½-year-old female, same great eater, $250; gorgeous hatchling male, $150. Also, jungle carpet, yearling female Barker bloodlines, docile, excellent color developing, $350; yellow anacondas, black & yellow beauties, 5 months old, doing great, only four left, $125 each; green tree python, 2 months old, deep maroon with yellow vertebral highlights, $500. Mark, Strictly Serpents, (847) 854-3259.

For sale: Kenyan sand boas, c.b. 10/12, some very bright orange, father from a Tanzanian blood line, $50; Mexican rosy boas, $60. Herps in Heat Reptile Propagation. Call Ellen evenings at (708) 383-7986.

For sale: two male and three female brown African house snakes, 2 and 3 years old, group produced 180 eggs in 1997 (so far), all for $400 firm. Theresa, (517) 372-5730.

For sale: c.b. '97 hatchlings. One male and one female Sonoran gopher snakes (*Pituophis catenatus affinis*), lemon yellow and candy apple red, $80/pair; one male and one female hetero Sonoran gophers, male has tail kink, $25/pair. Two male Taiwan beauty snakes, both have slight tail kinks, $25 each. Also one male and one female c.b. '96 Macklot's pythons, 4' + , $150/pair. Craig Roehm, P.O. Box 10834, Erie PA 16514, (814) 455-5246 (no answering machine so keep trying).

For sale: c.b. '95 female Smalooan milksnake, excellent color, $65; c.b. '94 female Mexican rosy boa, $85; c.b. '97 northern blue-tongue skinks, $65. (708) 361-5835.

Advertisements (cont'd)

For sale: beautiful, feeding snakes. Wholesale quantities to dealers, individual purchases welcome. Send SASE for free price list. Robert Applegate, P.O. Box 338, Campo CA 91906, (619) 478-5123. Also, free phone consultation on snake husbandry problems as a service to the herp community.

For sale: Premium captive-produced reptiles. **Piebald black pines**; Brazilian rainbow boas (Lamar); blonde trans-Pecos rat snakes; Baja rat snakes; gray-banded kingsnakes (Langtry); Okeetee corns; Tennessee corns (rare locality); ghost corns; melanistic garters (unusual form of melanism—male is solid black with three blue stripes and a powder-blue chin); Peruvian matamatas; Mexican redleg tarantulas. Call for free price list or just to shoot the bull. Private breeder Michael Stefani, (630) 372-3936.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 471-0240. E-mail <fpglwmau@anv.net>.

For sale or trade: two male and one female Corn Island boas (*Boa constrictor imperator*), c.b. '97, unrelated, rare, small boas from islands off Nicaragua, with orange saddles and extra long red tails, $1100/trio, or will trade for *Corallus* or *Candoia*. Also available: Solomon Islands tree boas (*Candoia bibroni australis*), c.b. '97, unrelated pairs and trios available—yellows, oranges, reds & tiger patterns, including solid and banded animals, $125–175 each. J.C. Reptiles, Jerry Conway, 7154 N. University Drive, #102, Tamarac FL 33321, (954) 722-8758.

Internship: The **Kentucky Reptile Zoo**, a nonprofit organization, is seeking student interns for the 1998 spring, summer and fall seasons. The zoo is an educational exhibit, reptile breeding and venom research facility, located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of snakes in the area, housing and $55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March–May), or SUMMER (June–August), or FALL (September–November) is required. To apply send a cover letter and resumé to: Jim Dykes, Internship Coordinator, Kentucky Reptile Zoo, 1275 Natural Bridge Road, Slade KY 40376. Deadlines for applications are: SPRING, December 1, 1997; SUMMER, March 1, 1998; and FALL, June 1, 1998.

Software: **TRACS™** (the BEST SELLING record keeping and breeding program for IBM and compatibles). Quickly retrieve data such as breeding history, feeding schedules and medical records on each of your animals and use the information to improve your husbandry techniques. Just $39.95 plus $5 s&h, $10 outside the U.S. Download free demo at <http://www.leaplizard.com>. Send check, money order or credit card information to Leapin' Lizards, 23852 Pacific Coast Highway, #375, Malibu CA 90265 or call at (310) 456-3266.

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-MAIL: <blove@cyberstreet.com>.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Wanted: male gliding gecko; male Bibron's gecko; female white-lined gecko; male bronze house gecko; female tropical girdle-tailed lizard. Matt O'Connor, (630) 469-4533, E-mail: <JediKnig13>.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Wanted: Styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from $2 to $5. Bring to CHS meetings. Scott J. Michaels, D.V.M., Serpent City, (815) 363-0290.

Line ads in this publication are run free for CHS members — $2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail <MADadder0@aol.com>.

GRANTS AVAILABLE FROM MINNESOTA HERPETOLOGICAL SOCIETY

The Minnesota Herpetological Society will be dispersing 75% of their net income from this year's Midwest Herpetological Symposium to herpetologically related conservation works. Preferences will be given to local (state) or regional (midwest) based studies or projects receiving limited or no funding. More than one application may be selected based on the number of applications and the money available. All applications should include the following information: the nature of the study / project, species, study / project location, timetable, name and address of applicant(s) / supervisor, and budgeted amount requested. To be considered an application must be received by December 31, 1997. The studies or projects will be selected by February 7, 1998, and notification will be mailed to recipients no later than February 28, 1998. Funds will be dispersed upon request after notification has been given. Applications should be sent to: Randy Blasus, 3224 Idaho Avenue South, St. Louis Park MN 55426. Questions can be sent to the above address or submitted by phone at (612) 925-4237, evenings.

1998 INTERNATIONAL HERPETOLOGICAL SYMPOSIUM IN CINCINNATI

The 22nd annual meeting of the International Herpetological Symposium will take place June 25–27, 1998, at the Holiday Inn–Cincinnati Airport in Cincinnati, Ohio. The theme for the event will be: Are Captive Snakes Mere Caricatures of Their Wild Counterparts? In addition to a strong line-up of speakers, events will include a banquet and auction, a Cincinnati Zoo field trip and dinner, David Dennis/Eric Juterbock slide shows, workshops (photography; amphibian, turtle, lizard and snake husbandry), and a special celebration of the beginning days of the Ohio Herpetological Society. The banquet speaker will be Kraig Adler. Other speakers will include Elliott Jacobson, David Chiszar, Joe & Suzanne Collins, Jim Harrison, Johnny Arnett, Bernard Bechtel, Mike Goode, Harvey Lillywhite, Pete Strimple, Neil Ford, Aaron Bauer, Bill Love, Peter Tolson, Paul Weldon, Vince Scheidt, Eugene Bessette, Gordon Schuett, Sherman Minton, Robin Saunders and Gordon Burghardt. Registration will be $125 on or before May 15, $150 thereafter. For registration or other information contact: Stan Draper (IHS Secretary), P.O. Box 16444, Salt Lake City UT 84116-0444; E-mail <SDraper@npsp.com>.

1998 MIDWEST HERPETOLOGICAL SYMPOSIUM IN INDIANAPOLIS

The 14th annual Midwest Herpetological Symposium will be held in Indianapolis, Indiana, sometime during October 1998. Speakers will include Sherman Minton, Bernard Bechtel, Jeff Wines, Ron Humbert, Mike Wood, Michael J. Lannoo and Darryl Karns.

ENGLISH VERSION OF *REPTILIA*

With the appearance of an English version in January 1998, *Reptilia*, the three-year-old European herp magazine, will become the first herp magazine to appear in three languages. The cost for one year (six issues) is 6000 Spanish Pesetas for surface mail delivery, or 10000 Spanish Pesetas for airmail delivery. Payment can be either an international money order in Spanish Pesetas or by Visa credit card. Specify either Spanish, German or English edition and send your order to: Reptilia, Servicio de Subscripciones, Muntaner 88, 5º 1ª, 08011 Barcelona, Spain. E-mail: <reptilia@lander.es>.

GREATER NORTHEAST HERPETOLOGICAL EXPO AND SYMPOSIUM IN SCHENECTADY

On Sunday, March 29, 1998, the Upstate Herpetological Association will host the second annual Greater Northeast Herpetological Expo and Symposium at the Ramada Inn Convention Center in Schenectady, New York. There will be an Expo Eve Dinner (Saturday, March 28) featuring Dr. Karen Lips speaking on "The Disappearance of Frogs." In addition to the captive-bred animal sales there will be a total of eight speakers throughout the day. For vendor information telephone C.J. or Rita Benenati at (518) 758-1373.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, November 26, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. **Robert Henderson** of the Milwaukee Public Museum and our own **John Murphy** will speak on the topic of "Giant Snakes." John and Bob are co-authors of the newly released *Tales of Giant Snakes: A Historical Natural History of Anacondas and Pythons*. There will be copies of the book for sale at the meeting, and afterwards both authors will be available for a book-signing. At this meeting our annual election of officers will also take place.

Speaking at the **Tuesday, December 30**, meeting will be **David Beamer**, a student at Indiana University. David will speak on the turtles and other animals of Newton County, Indiana.

We are required to use the entrance on the west side of the museum. **We are allowed to use the free parking lot to the west of the museum as long as space is available. Your best bet is to try that lot first before settling for the lot to the east of the museum or for the Soldier Field lot, where you may have to pay for parking. For the latest on the parking situation call our CHS message line, (773) 281-1800, before you come.** Public transportation is an option: the Roosevelt Road (12th Street) bus now goes directly to the museum, thus providing a connection with the el and subway. This bus service runs until 11 P.M.

Turtle Club

The Chicago Turtle Club will meet Sunday, November 23, 1:00–3:30 P.M., at the North Park Village Administration Building, 5801 N. Pulaski, in Chicago.

ANYONE INTERESTED IN A YOUTH SUBCHAPTER OF THE CHS??

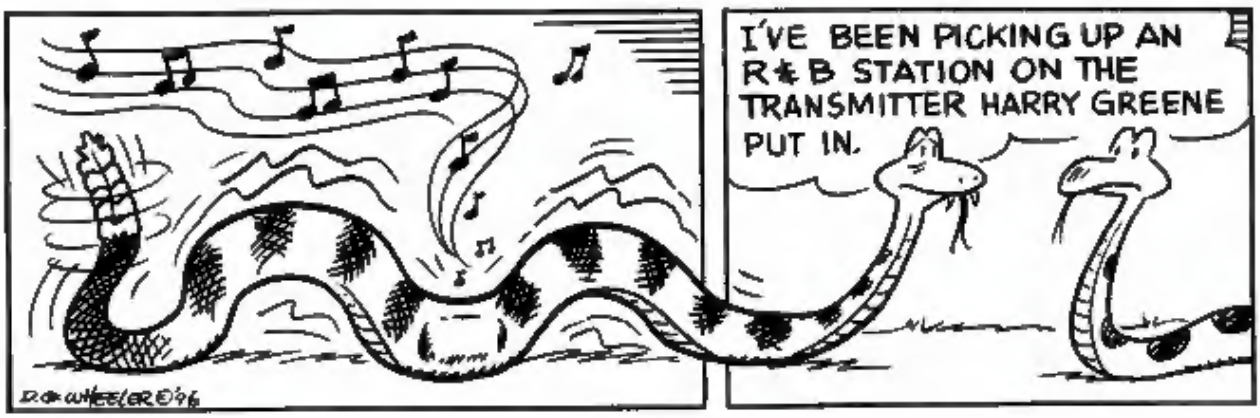
Recently it was proposed that a new CHS auxiliary be formed to address the needs of young budding herp enthusiasts. The group would meet at times more convenient to young people in addition to our current Wednesday night meeting. It would give young people a chance to rub shoulders with responsible herpetologists and to make friends with similar interests. Possible ideas for activities might be:

- Show and tell meetings where young people could bring their pets and share information
- Projects to promote herps and herp habitat
- Chats with veterinarians who are interested in herps
- Small group field trips to see reptiles and amphibians in the wild.

Interested parties (young and old) call:

Greg or Andy Brim	(630) 824-4446
Audrey Vanderlinden	(773) 836-2477

THE ADVENTURES OF SPOT



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